

2031
B.E. (Biotechnology) Third Semester
BIO-312/302: Microbiology

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit.

x-x-x

- I. Attempt the following briefly:-
- Why are microorganisms metabolically so different from higher organisms?
 - How are hfr strains formed?
 - Describe lysogenic phages.
 - Write the importance of Bergey's Manual.
 - Define fermentation.
 - Give two economic importance's of viruses.
 - What is a symbiotic association?
 - Differentiate between outer membrane and inner membrane of a bacterial cell.
 - Give the role of ATP.
 - Differentiate between eubacteria and archaebacteria. (10x1)

UNIT - I

- II. a) Give contributions of Louis Pasteur and Antonie Leewenhoek for growth of microbiology.
b) Differentiate between the cell wall of Gram- positive and Gram-negative bacteria. (5,5)
- III. a) Explain microbial growth and give its mathematical expression.
b) Explain the different methods for measuring growth. (5,5)
- IV. Elaborate on the significance of sterilization in microbiology. Explain the physical agents which can help in controlling microbial growth. (10)

UNIT - II

- V. What do you understand by recombination? Name the different methods of recombination in bacteria. Explain any one in detail. (10)

P.T.O.

(2)

- VI. a) Which different approaches/methods are used for grouping different bacterial isolates?
b) Elaborate on the goals of classification. (7,3)
- VII. Give the role of microorganisms as biogeochemical agents. Support your answer with suitable examples. (10)

x-x-x